



RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	7/22/2013

**CUNNINGHAM**  
**Security Systems**  
 10 Princes Point Road, Yarmouth, Maine 04096  
 Office: 207.846.3350 • Fax: 207.846.6080

**ROUNDHOUSE**  
**125 PRESUMPCOTT STREET**  
**PORTLAND, MAINE 04103**  
**LOWER FLOOR FIRE ALARM PLAN**

DATE	7/18/2013
CHECKED	WYNNE B. HANS NICET # 90486
DRAWN	JFB UNICAD JOB # 13388

**SILENT KNIGHT**  
**BATTERY CALCULATIONS**  
**MODEL 5820XL**

Panel ID: EXISTING FCS - 5820XL  
 Model: 5820XL Add. Fire Alarm Control Panel  
 Voice: 24 VDC

Standby Hours: 24  
 Alarm Mins: 5  
 Derating Factor: 1.2

Max MFC Current: 3.0 Amperes  
 Max Panel Current: 6.0 Amperes

Ckt #	Circuit Name	Current Draw	Standby	Alarm
5820XL	5820XL CTRL Panel	0.000	0.000	0.000
<b>FULL STATIONS</b>				
	Total Standby Current (Amperes)	0.002	0.002	0.002
	Standby Time in Hours	24	0.083	Alarm Time in Minutes / 60 (5 Mins)
	Total Standby AH Required	0.040	0.000	Total Alarm AH Required
	Total Combined AH Required	0.04		
	Multiply By the Derating Factor	1.20		
	Minimum Battery Amperes Required	0.08		

FIELD VERIFY

NOTE: THE ABOVE BATTERY CALCULATION IS A COMBINED TOTAL OF THE ADDITIONAL LOADS THAT WILL BE ADDED FROM THE SCOPE OF THIS PROJECT. FIELD VERIFY THE SIZE OF THE EXISTING BATTERIES AND UPSIZE ACCORDINGLY.

**SILENT KNIGHT**  
**BATTERY CALCULATIONS**  
**MODEL 5495**

Panel ID: EXISTING FCS - 5495  
 Model: Silent Knight 5495 Power Expander  
 Voice: 24 VDC

Standby Hours: 24  
 Alarm Mins: 5  
 Derating Factor: 1.2

Max Circuit Current: 13.0 Amperes  
 Max Panel Current: 6.0 Amperes

Ckt #	Circuit Name	Current Draw	Standby	Alarm
5495	5495 Pwr Module	0.000	0.000	0.000
<b>SPARE CKT.1</b>				
	5495(1) Not Circuit	0.000	0.986	
	Total Standby Current (Amperes)	0.000	1.971	Total Alarm Current (Amperes)
	Standby Time in Hours	24	0.831	Alarm Time in Minutes / 60 (5 Mins)
	Total Standby AH Required	0.000	0.164	Total Alarm AH Required
	Total Combined AH Required	0.16		
	Multiply By the Derating Factor	1.20		
	Minimum Battery Amperes Required	0.280		

FIELD VERIFY

NOTE: THE ABOVE BATTERY CALCULATION IS A COMBINED TOTAL OF THE ADDITIONAL LOADS THAT WILL BE ADDED FROM THE SCOPE OF THIS PROJECT. FIELD VERIFY THE SIZE OF THE EXISTING BATTERIES AND UPSIZE ACCORDINGLY.

**LOWER FLOOR FIRE ALARM PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH

**NAC Circuit Voltage Drop Calculation** 7/19/2013

Project Name: ROUNDHOUSE  
 Circuit Number: EXISTING FCS SPARE CKT.1

Nominal System Voltage: 20.4 volts  
 Minimum Device Voltage: 16 volts  
 Distance from source to 1st device: 50  
 Wire Gauge for balance of circuit: 14

Wire Gauge: 14  
 Resistance Per 1000: 6.14

Max Output Current: 1.3 amperes  
 Total Circuit Current: 0.985 amperes

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent
Device 1	0.066	27	19.95	0.30	1%
Device 2	0.079	2	19.95	0.46	2%
Device 3	0.066	18	19.94	0.55	3%
Device 4	0.094	36	19.70	0.70	3%
Device 5	0.079	11	19.80	0.74	4%
Device 6	0.107	18	19.66	0.80	4%
Device 7	0.066	29	19.53	0.87	4%
Device 8	0.079	14	19.50	0.90	4%
Device 9	0.094	21	19.46	0.94	5%
Device 10	0.079	41	19.42	0.98	5%
Device 11	0.094	267			

**NAC Circuit Voltage Drop Calculation** 7/19/2013

Project Name: ROUNDHOUSE  
 Circuit Number: EXISTING FCS SPARE CKT.2

Nominal System Voltage: 20.4 volts  
 Minimum Device Voltage: 16 volts  
 Distance from source to 1st device: 50  
 Wire Gauge for balance of circuit: 14

Wire Gauge: 14  
 Resistance Per 1000: 6.14

Max Output Current: 1.3 amperes  
 Total Circuit Current: 0.986 amperes

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent
Device 1	0.176	24	19.98	0.42	2%
Device 2	0.079	17	19.92	0.48	2%
Device 3	0.066	12	19.88	0.52	3%
Device 4	0.066	18	19.83	0.57	3%
Device 5	0.094	19	19.83	0.57	3%
Device 6	0.079	2	19.78	0.62	3%
Device 7	0.079	7	19.77	0.63	3%
Device 8	0.107	14	19.76	0.64	3%
Device 9	0.107	14			